YUKON-CHARLEY RIVERS NATIONAL PRESERVE

CENTRAL ALASKA NETWORK

Vegetation Monitoring Program

Summary Trip Report: Thanksgiving Mini-grid

29 July – 7 August, 2009

Photo 1: Looking northeast from above point 3. The large island which contains several grid points is the low lying terrain just beyond the main Yukon River channel.

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PURPOSE:

The purpose of this trip was to install and measure 25 permanent vegetation monitoring plots at the Thanksgiving Creek Mini-grid as part of the ongoing long term vegetation monitoring program in Yukon-Charley Rivers National Preserve. Our work was performed following the protocols developed by the Central Alaska Network (CAKN) vegetation monitoring program (see Roland *et al*. 2005). This was the fourth season of vegetation monitoring fieldwork at Yukon-Charley Preserve for the Central Alaska Network program.

PERSONNEL:

Pete Del Zotto—Crew lead; plot and quadrat variable estimates; vascular plants collections and tentative field identifications; transect recorder; tree and sapling measurements, tree coring

Haig Diradourian—transect reading; plot photography; tree and sapling measurement; tree coring.

Kara Thies—soil measurements; transect reading; plot photography; sapling measurement, non-vascular identification and collections

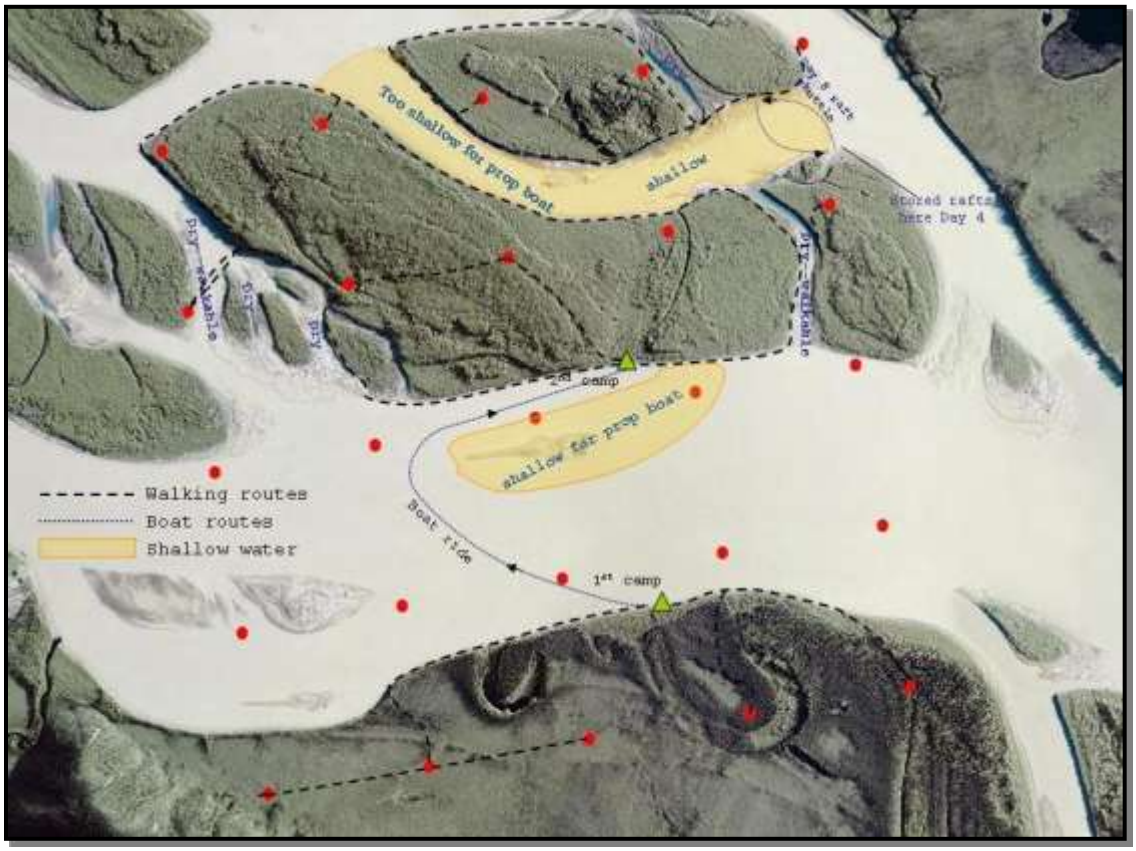
ACCESS TO MINI-GRID AND CAMPING POSSIBILITIES:

Access

The Thanksgiving Creek grid straddles the Yukon River and is located about 1/3 of the way between Circle and Eagle via the river. It was reached from Fairbanks in two segments of travel: 1) a 3 ½ hour drive to Circle and 2) a 2-2 ½ hour boat ride up the Yukon River from Circle.

The crew and boat were transported from Fairbanks by our boat operator, John Burch. We departed Fairbanks at 9:15 am and arrived in Circle at about 12:45 pm. The boat was loaded with gear and departed about 2:30 pm. The river was exceptionally low due to the summer drought, and the boat scraped bottom a couple of times forcing us to stop and inspect the damage. Thanksgiving Creek was reached was reached about 5:00 pm.

Points 21, 22 and 23 are on a separate island and required use of a raft to reach them. When moving camp on day 4, the boat reached a location that was suitable for a raft crossing and the rafts were ditched there until they were needed in a few days. The raft crossing itself was easy as there is little current in the shallow channel. It's also fairly easy paddling against the current in this channel when returning.



Map 1: Travel routes and camp locations on the Thanksgiving Creek Grid. The minor river channels were crossable on foot during this late-season, low water visit.

Camping

Two camping sites were used during this visit. A sandbar on the river's south shore was used first and the crew stayed three days. Camp was then moved across the main river channel to the south edge of the large island. The preferred second campsite was on the island's north shore, but shallow water in the channel to the north prevented boat passage. Even the approach to the island's south-side camp was affected by shallow water. Only approaching from the west was there deep enough water to clear the off-shore sandbar.

Silt was everywhere. It was even on top of all the downed logs, frequently in our food and would drift around in the dining tent on windy days. A brush would have been handy.

Fortunately the crew brought 30 gallons of clean water as no clear water source was found near the first camp. However, the island does have some clear water located in the shallow channels that separate it from adjacent small islands. They are visible on aerial photos as the aqua-blue features between the islands (Map 1). These pools are isolated from the river current which allows the sediment to settle and they are amazingly clear. The eastern most pool is several feet deep and would make a fantastic swimming hole!

HIKING:

There is difficult hiking to points 1 and 2. The alder and willow are very thick and seemingly impenetrable in places. This is true even when traveling under the dense conifer cover. Expect slow access to these points.

Points 3, 4 and 5 have much easier travel. I recommend walking the river bank to somewhere north of point 4 then head south through the hummocks to either point 4 or 5. It's a bit wet in spots but is clear of the shin-shredding alder and brush at points 1 and 2.

The island perimeters are lined downed willow and shrubs crushed by spring ice. This zone can be up to 100 meters wide. The walking is very difficult, somewhat like walking on logging slash. The distances are fairly short so the travel requires more patience than pain tolerance.

Photos 2 and 3: Spring break-up flooding and ice floes crushed large areas of riverside vegetation. Often willows were still alive and sending up vigorous shoots such as on the right at point 25.

WEATHER AND ENVIRONMENTAL CONDITIONS:

We experienced large quantities of smoke while working in this area. Wildfires along the river escalated during our stay with several burning between Circle and Thanksgiving

Creek. With a half-million acres getting torched within 50 miles the smoke in the Yukon valley was severe. We saw sun on a few days but mostly the visibility ranged from 75 meters to maybe a mile. It was so thick by the end of our stay that boats were unable to run the river! Aside from one light sprinkle the weather was dry with highs in the 60s. The hot and humid first night was the exception.

Mosquitoes were predictably heavy and biting flies were a bigger nuisance than any time prior this summer.

SAFETY CONSIDERATIONS:

Damaging the power boat was a real possibility given the low water levels that we experienced. Boat travel was needed for the final two mini-grids this season, and each time gravel bars were hit by experienced boat operators. This happened even when following GPS routes of successful trips done only a few weeks before. Always be aware that a track log is only relevant to the water level at which it was recorded!

Had a particle mask been available I would have worn it. The heavy smoke was certainly an eye irritant. The grid required a water crossing between islands. This year inflatable kayaks were used and it was an excellent solution.

PHENOLOGY OBSERVATIONS:

About ¾ of the vascular species were producing fruit. This was consistent throughout the grid, which had almost no aspect or elevation change. A few plants weren't far past peak blossom, some being *Delphinium, Thalictrum, Aconitum, Galium boreale* and *Achillea.*

GENERAL NOTES ON PLOT-WORK AND PLOT OBSERVATIONS:

All 14 accessible points on this grid were completed. The remaining 11 points fell in the Yukon River. This work was done with a two-person crew for the final seven days as health issues forced the departure of a crew member on day 4.

The logistics of this grid included a boat ride on day 4 in order to move camp. It was provided by John Burch who also brought us up the river from Circle on day 1. After working at Coal Creek for two days, he stopped on his return trip and shuttled us and gear across to the island.

Table 1: Collection series for the Thanksgiving Creek grid:

Collector	Type & amount	Series
Del Zotto	Vascular collections (52)	PDZ-09-230 to PDZ-09-281
Diradourian, Thies, Del Zotto	Digital Photos (223)	100-663 to 100-885
Diradourian, Del	Tree Cores (10)	

Zotto Thies	Soils	15 collections
Thies	Nonvascular collections (37)	KT-09-176 to KT-09-212

The 2009 ice floes and flood impacted this area, especially the islands. For up to 100 meters or more, vegetation on island perimeters was flattened (yet alive). It is hard to tell if the cause was swift water or perhaps large pieces of ice that came to rest, or some combination. Forest size and conifer establishment increased toward island centers or higher locations. These weren't gradual changes; they seemed to happen at noticeable boundaries where tree height would uniformly increase several feet. These boundaries are probably the limits of past flood and ice events, and are clearly seen on aerial photographs.

Photos 4 and 5: Fire, fire, everywhere! On the boat trip Kara captures a burning memory, left. A more imposing plume towered over that evening's camp, shown at right.

The island plots had very little forb cover, except where there was *Equisetum*. The shrubs, be it willow, viburnum or rose, was consistently thick whether near the edge or the interior of an island. The first non-native plants of the season were seen also: *Plantago* and *Tanacetum* were seen near point 20 and a few other locations on the island shores.

Wildlife

Evidence of a few large animals was seen although none were directly observed. The silty river shore had prints of moose, wolf and bear on the mainland (south) side. The island had recent bear prints. A bear walked near camp at some point as tracks were nearby. A few sandhill cranes were seen in the muddy flats of the eastern most islands near points 16, 21 and 22.

ACTIVITES:

Table 2: Synopsis of activities on the Thanksgiving Creek grid:

Date	Grid day	Activity
July 29	1	Drive to Circle, boat ride to grid, set up camp
July 30	2	Complete points 1 and 2
July 31	3	Complete points 3, 4 and 5
August 1	4	Load boat, move camp, begin point 18
August 2	5	Complete point 18 and 19
August 3	6	Complete points 25 and 20
August 4	7	Complete points 17 and 16
August 5	8	Complete points 21, 22 and 23
August 6	9	Complete point 24
August 7	10	Boat to Circle; Drive to Fairbanks

Day 1: Wednesday, July 29 Travel

After the drive to Circle and boat trip to Thanksgiving Creek we unloaded the boat at about 5 pm and set up camp on a narrow sandbar nearest to point 7. The kitchen was set about 150 meters east, also on the sandbar. The boat ride along the river had views of a few fires, some near the river on the north side.

Day 2: Thursday, July 30 Points 1 & 2

The plan was to complete points 1, 2, and 3. It was important we complete plots 1-5 before Saturday when our camp move and boat ride were scheduled. We walked the river bank until about due north of point 1 then navigated into very thick shrubs. The GPS signal would disappear under the alder and spruce canopy and travel was very slow.

Point 1: It fell on the west edge of a dry gulley (old slough). Point center fell in an alder shrub band adjacent to the gulley. The remainder of the point was open white spruce. It's possible the whole point could be viewed as one Viereck class. I identified the conifer-free shrub band as separate from the remaining forest. The gulley itself was full of horsetail and sedge. Floods affect the area—deep silt, and numerous downed trees and wood. Silt was on the tree bark. Coring was attempted on 13 trees; 11 were rotten.

On to point 2, we first traveled north to the river then west along the bank, re-entering the shrubs where the conifers almost reach the river. The travel had slightly less shrubbery than going to point 1, but still time consuming.

Point 2: This was a fairly uniform white spruce stand with an understory of *Alnus viridis*. The ground is a solid moss ground cover without the thick silt deposit that exists at point 1.

A few white spruces just outside the plot approach 25 meters tall. Tree bark has silt up to about 1 meter high.

Weather: Very humid morning; afternoon smoke blocking sun, high upper-70s.

Day 3: Friday, July 31 Points 4, 5, & 3

This was our one day to complete plots 3, 4, and 5. We traveled the river bank west until it became impassable which put us about 240 meters north of point 4. After a few meters of brush the travel gave way to open terrain with only tussocks and some water to navigate, which provided *much* better travel than to points 1 and 2.

Point 4: This was an area of sparse spruce cover with tussocks of *Carex* and some *Eriophorum.* There were holes between tussocks with water up to 20 cm deep, especially on the north side of the point. The shrub cover is about 20%, so the Viereck type could be interpreted a bit differently. East and west of the point the tree density gradually increases to >10% into a black spruce or mixed spruce woodland.

Travel to point 5 was rather uninhibited as we stayed in the trees where there were only a few tussocks and no brush. About a 15 minute walk.

Point 5: Similar to point 4—few trees, flat, tussocks—but without standing water. Spruces encroached into the plot and tree cover exceeded 10% about 15 meters away.

Travel to point 3 was through stunted spruce and hummocks with some standing water.

Point 3: This is similar to points 4 and 5 with slightly more trees, about 10% cover. To the north there were patches that exceed 25% tree cover. Beyond 50 meters both north and south of point the trees were consistently larger with denser cover. The point had scattered holes in the ground, some with water, making for tricky footing.

Weather: Humid morning, very heavy smoke, ½ mile visibility, some clearing and breeze in the afternoon, high in upper 70s.

Day 4: Saturday, August 1 Move camp, begin point 18

The boat arrived at 10:30 am and we boarded without gear for a reconnaissance of the islands and channels on the river's north side. We took the boat around the nearest (largest) island clockwise to scout the north side for a suitable campsite. The channel on the island's north side was too shallow to enter. We reached the north-east corner of the island via the northern-most channel, found a place to cross between islands and dropped off two rafts there for later use. Camp was pitched on the big island's south side, with the boat approaching from the west to clear the off-shore sandbar.

Haig stayed on the boat, traveling to Circle and eventually Fairbanks, ending his season.

Point 18: This is flat and densely covered with *Salix* and *Populus balsamifera.* The travel from camp is a bit brushy and thorny (lots of rose). Total canopy cover is very dense, although the only tree component, cottonwood, provides about 50% cover. It occurs in

greater density outside the plot so there is closed-poplar Viereck type in the area. The plot is only about 3 meters above the river water level and has relatively old trees for the island.

Weather: Smoky, dry, low 70s.

Day 5: Sunday, August 2 Points 18 & 19
We began the day by completing point 18. We departed for point 19 at 10:45 am.

Point 19: The center point is on a slope and the lower section of the plot is in a damp gully thick with *Carex.* Above the plot is dense cottonwood. The slope itself is dense with willow and alder with very little cottonwood. The plot was vegetated above the knees—there were practically no forbs, mosses or lichens. Leaf litter is heavy.

Returned to camp via edge of island and walking the river bank. This route is highly recommended!

Day 6: Monday, August 3 Points 25 & 20
The plan was to complete point 25 and begin plot 20. We traveled west along the island shore, then north. The walking was entirely clear to within 50 meters of point 25.

Point 25: A 30 meter strip along the island edge has flattened vegetation from flood and ice floes. Over ¾ of the willows are lying flat though alive, and sending vigorous, vertical shoots, some over 2 meters tall. There were tremendous amounts of litter and wood that walking on top of. In the south side of the plot was the "unaffected" stand of willow—a dense canopy 5 to 7 meters tall.

The channel in between point 25 and point 20 was dry and travel was easy.

Point 20: This was on the edge of dry river channel and is at the fringe of where vegetation is growing. Any further out into the channel the vegetation disappears. The plot initially looks to have two Viereck types, but not so, given how the key is devised.

Weather: Smoky, partial sun, dry, high mid-70s.

Day 7: Tuesday, August 4 Points 17 & 16

We began by walking the island shore to the east, then north through the dry channel, continued west on the shoreline to within 60 meters of point 17, then navigated in.

Point 17: This was another riverside mess, a dense willow stand flattened by the ice break-up. A small part of the plot on the south side included the willow stand unaffected. The vertical shoots from the willow boles were over 1 meter long, all the growth appearing to come this year. Small amounts of rock and gravel are present, the remainder being alluvium. There was dense cover here but very few species.

Travel to point 16 was done via river bank then south along the channel to a dry crossing.

Point 16: This point was about 25 meters beyond the crushed and flood damaged willow. It had a canopy of *Salix* about 6-8 meters high and a dense shrub understory of dogwood, alder, rose and viburnum. There was much wood and debris in the plot.

Weather: a steady wind all day, slight clearing of smoke, high mid-70s.

Day 8: Wednesday, August 5 Points 21, 22, & 23

The plan this day was to reach the northern-most island and complete the three points there. We crossed the channel without problems; maximum depth was only 3-4 feet. One person and gear fit well in the Aire inflatable kayaks.

Point 21: This was centered in the river and had a 1 meter portion that just reached the muddy river edge, 20 meters from the nearest vegetation. Since the river was exceptionally low, the entire point was classified as being in "running water". It's worth monitoring—with only a little sediment deposit it may be on "land".

The travel to point 22 was reached by walking the N-S channel separating the two small islands. The channel was dry.

Point 22: This straddled the edge of the 2009 flood and ice floes. The north side of the plot was flattened by ice. The remainder of the plot is mostly willow with ~15% *Populus balsamifera* about 6-8 meters tall. Despite the visual difference both are considered the same Viereck type—it's just that one area is, well, horizontal. To the south 20 meters begins a stand of cottonwood 12-15 meters tall with >60% cover.

Point 23 was reached by walking counter-clockwise around the island to within 100 meters of the point, then penetrating the flood debris and slash.

Point 23: This densely covered point was 40-50% cottonwood with *Salix, Alnus tenuifolia* and, *Cornus stolonifera*. Like other island plots, there was little diversity of plants and almost no ground cover. Numerous downed trees were 6-7 meters long, fell prior to this year, and were lying oriented to the northwest.

Weather: Morning sun, heavy smoke by afternoon, calm, high mid-70s.

Day 9: Thursday, August 6 Point 24

Point 24: This was reached by walking the island counter-clockwise, dropping life vests near the rafts on the way. We planned to bring the rafts back to camp in the afternoon. Point 24 is a willow stand up to 7 meters tall with a few *Alnus tenuifolia* in the canopy. About 20 meters south the Viereck type changed as cottonwood cover exceeded 10%, continuing to increase toward the island interior. A few cottonwood seedlings were in the southern part of the plot.

After completing the point we hauled the rafts to the main river channel and floated back to camp.

Weather: Extremely smoky, visibility less than ½ mile, afternoon sprinkles, high mid-60s.

Day 10: Friday, August 7 Travel

Smoke was too thick in the morning to see the dining tent 75 meters away. Initial word from dispatch was that no boats were traveling the river and that we might need to wait another day. A boat assisting on the fires was able to reach us at 12:15 pm and get us out to Circle by 2:00 pm, where a ride to Fairbanks was waiting. Return drive was delayed by fire operations on the road from Circle.

Photo 6: Enjoying the fresh air while floating the kayaks back to camp on day 8.

CONCLUSIONS AND FUTURE CONSIDERATIONS:

One key in completing this grid were the well-timed boat and raft logistics. It was fortunate to have boat assistance on day 4 to move camp. Although it's possible to cross the main river channel with human-powered kayaks, it would be slow, require multiple trips, and the strong current would force boats downstream.

Conifers were rare on the islands so there was almost no coring or tree measurement to do. This was a big factor in enabling just two people to complete the island plots. The islands appear to have a dense canopy, which they do, but it's mainly willow at the plot locations.

REFERENCES CITED:

Roland, C.A., Oakley, K., Debevec, E. & Loomis, P. (2005) Monitoring vegetation structure and composition at multiple spatial scales in the Central Alaska Network. National Park Service, Central Alaska Network, Final Monitoring Protocol.